

CLAIMS

1. A computer program product encoding a computer program for executing on a computer system a computer process, the computer process comprising:

identifying a plurality of storage devices to be configured in a storage network;

identifying a number of host port LUNs configured on each of the storage devices;

identifying a number of host port connections to the storage devices; and
for each host port connection, determining actual loading for each of the storage devices based at least in part on the queue depth for each of the host port LUNs.

2. The computer program product of claim 1 wherein the computer process further comprises determining actual loading for each of the storage devices based at least in part on a number of host groups in the storage network.

3. The computer program product of claim 1 wherein the computer process further comprises determining actual loading for each of the storage devices based at least in part on a number of LUN security groups in the storage network.

4. The computer program product of claim 1 wherein the computer process further uses a loading factor to determine if the actual loading for each of the storage devices exceeds a maximum loading.
5. The computer program product of claim 1 wherein the computer process further simplifies host groups and LUN security groups into virtual connections for analysis.
6. A computer program product encoding a computer program for executing on a computer system a computer process, the computer process comprising:
 - identifying a plurality of storage devices to be configured in a storage network;
 - identifying a number of host port connections to the storage devices; and
 - for each host port connection, determining actual loading for each of the storage devices based at least in part on the queue depth for each of the host port connections.
7. The computer program product of claim 6 wherein the computer process further comprises determining actual loading for each of the storage devices based at least in part on a number of host groups in the storage network.

8. The computer program product of claim 6 wherein the computer process further comprises determining actual loading for each of the storage devices based at least in part on a number of LUN security groups in the storage network.
9. The computer program product of claim 6 wherein the computer process further uses a loading factor to determine if the actual loading for each of the storage devices exceeds a maximum loading.
10. The computer program product of claim 6 wherein the computer process further simplifies host groups and LUN security groups into virtual connections for analysis.
11. A method of device loading in a storage network, comprising:
 - configuring a storage device in the storage network with a plurality of host port LUNs;
 - identifying a queue depth for each of the host port LUNs;
 - automatically determining actual loading for the storage device based at least in part on the queue depth for each host port LUN; and
 - accepting the storage device configuration if the actual loading for the storage device is no more than a maximum loading for the storage device.

12. The method of claim 11 wherein automatically determining actual loading for the storage device is also based at least in part on a number of host paths connected to the storage device.

13. The method of claim 11 wherein automatically determining actual loading for the storage device port is also based at least in part on a number of LUNs configured for the storage device.

14. The method of claim 11 wherein automatically determining actual loading for the storage device is also based at least in part on a number of host groups in the storage network.

15. The method of claim 11 wherein automatically determining actual loading for the storage device is also based at least in part on a number of LUN security groups in the storage network.

16. The method of claim 11 further comprising automatically determining actual loading for a plurality of backend LUNs connected to the storage device.

17. The method of claim 11 further comprising iteratively determining actual loading for a plurality of storage devices in the storage network.

18. The method of claim 11 wherein the maximum loading for the storage device is based on a loading factor.

19. The method of claim 18 wherein the loading factor is in the range of about 80% to 90% of the service queue depth for the storage device.

20. A method of device loading in a storage network, comprising:
- configuring the storage network with a plurality of host port connections to at least one storage device; and
- for each of a plurality of host port connections to the at least one storage device, determining actual loading of the at least one storage device based at least in part on the queue depth of each host port connection.
21. The method of claim 20 wherein determining actual loading is also based at least in part on a number of host groups in the storage network.
22. The method of claim 20 wherein determining actual loading is also based at least in part on a number of LUN security groups in the storage network.
23. The method of claim 20 further comprising determining actual loading for a plurality of backend LUNs connected to the at least one storage device.
24. The method of claim 20 further comprising iteratively determining actual loading for a plurality of storage devices in the storage network.